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ABSTRACT

A study examined the amount and kinds of language arts curriculum integration that occurred in natural elementary school classroom settings, the contextual factors associated with such integration, and the relationship between teachers' thinking about this subject and the occurrence of integration in their classrooms. Teachers in six self-contained classrooms kept logs for three months in which they recorded the beginning and ending times for each instructional intent, and the materials used in each lesson. In addition, the teachers were observed six times during the period and were interviewed at the end of the study. Results showed that while interview data indicated that teachers generally favored an integrated approach to language arts instruction, logs and observations revealed that less than 10% of time spent in language arts instruction actually involved integrated activities. Integration tended to occur only in whole-class settings under direct teacher supervision. (FL)

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Research Series No. 140

CURRICULUM INTEGRATION:

ITS USE IN LANGUAGE ARTS INSTRUCTION

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Abstract

This study focused on the amounts and kinds of curriculum integration occurring in natural, elementary classroom settings, on the contextual factors associated with such integration, and on the relationship between teachers' thinking about this variable and the occurrence of integration in their classrooms. The study was conducted in six self-contained classrooms in a metropolitan area in central Michigan. Despite indications from teacher interview data that teachers generally favored an integrated approach to language arts instruction, examinations of the time logs kept by teachers and observations made by the research team revealed that less than 5% of the time spent in language arts instruction actually involved integrated activities. Integration tended to occur only in whole-class settings under direct teacher supervision.

CURRICULUM INTEGRATION: ITS USE IN LANGUAGE ARTS INSTRUCTION

William H. Schmidt, Laura R. Roehler, Jacqueline L. Caul[1]
Barbara Diamond, David Solomon, Patricia Cianciolo, and Margret Buchmann[2]

Two broad patterns of organization and planning characterize elementary school curriculum development. The first is based on the subdivision of curriculum, differentiated by subject matter areas. The second builds on relationships among areas of curriculum by organizing the school day, or portions of it, as an integrated whole in which various subject matters intertwine. In this paper we examine teachers' use of curriculum integration in language arts and reading instruction and the relationship between the level of use of and teachers' stated beliefs about integration.

Educators do not agree on which pattern of organization for instruction results in the greatest amount and quality of student learning. For example, the increasing emphasis on skill development has led some to assume that

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differentiated instruction must be maintained in language arts and reading instruction. As Dearden (1976) has stated:

> The language skills of reading and writing require specific instruction and practice however much they are surrounded by a context of interests or topic-relevance. (p. 44)

The general hypothesis of the interference effects between basic and higher-level component processes (as discussed by Glaser, 1981) is consistent with Dearden's view of language instruction. Investigations of reading comprehension, for example, suggest that it is probably not possible to attend simultaneously to two attention-demanding tasks (Lesgold & Perfetti, 1978; 1981). Researchers claim that the beginning reader alternately concentrates on the basic decoding skills of word recognition and then on considering what meaning the word has in the text. Perfetti and Lesgold (1979) suggest that the premature integration of a component process with other processes can lead to a breakdown in overall proficiency.

Proponents of integration argue, on the other hand, that, valuable as the emphasis on skill goals is, it is inadequate as a total conception of goals for elementary education. Attention needs to be given to the application of skills within a context of subject matter. Furthermore, integration of language arts and skills with other subjects appears to be a way to allocate the time needed to raise language skill competence without sacrificing subject-matter goals.

With these distinctions in mind, the present study focuses on the amounts and types of curriculum integration in natural classroom settings, the contextual factors associated with integration in these settings, and the relationship between teachers' thinking about integration in their classrooms and the actual use of curriculum integration.

Conceptual Distinctions

Several conceptual distinctions have guided our work. We define integration as the purposeful intertwining of subject matters to achieve multiple goals. Thus, the mere presence of other content does *not* constitute an integrated lesson. If, for example, a teacher asks students to punctuate a series of sentences describing Alaska, one cannot assume that the students are attending to the content about Alaska. Attention to content becomes more likely if the teachers make an explicit, perceptible effort to teach that content as well as the language skills. This becomes particularly important in light of typical classroom practices. Schedules placed on the board at the beginning of the day generally reflect segmentation of subject matter during the school day. Children tend to learn better when they are cued to specific content goals but such cues are likely to impact the focus that students attribute to integrated instruction.

Based on the differentiated cuing that occurs naturally in most elementary classrooms, we distinguished between the major and minor focus of each integrated activity. In addition, the multidimensional focus of the language arts and reading curriculum adds complexity to the notion of integration because each language skill can be integrated both with other content areas and with other language skills.

In fact, three distinct types of language arts integration can be identified. In Type 1 integration, language skills are the major emphasis of the lesson and some other content area is integrated as a minor focus of the instruction. Type 2 integration occurs when non-language content serves as the major focus of the lesson, with language skills integrated as the minor focus. Type 3 integration occurs when language skills are integrated with each other. This third form of integration does not arise from the natural linkage of

language skills with the content in which skills are being applied or practiced, but rather from the belief that all language skills are commonly related to communication and therefore naturally intertwined for instructional purposes.

To describe the nature of language arts integration, five discrete areas of language instruction were identified: reading, including all instances of direct instruction in reading skills; language instruction, including original writing; writing mechanics, including the areas of penmanship, spelling, punctuation, grammar usage, and sentence composition; oral expression, including creative drama and speech; and library study skills.

Study Design

The study was conducted in six self-contained classrooms in a metropolitan area of central Michigan. In one of the six classrooms, two teachers team-taught. All participating teachers were asked to keep logs for three months, recording the beginning and ending times for each instructional period of the day, the instructional intent, and the material used in each lesson. Project staff observed in each classroom on six days during the same three-month period and recorded their observations in structured field notes. The data from the observations and logs were collected and coded consistent with Harnischfeger and Wiley's (1980) paradigm for describing a pupil pursuit, including the specifications for mode of teacher supervision, particular grouping used, and curricular content.

Data collected during the observations substantiated the accuracy of the logs in reflecting the amount of instruction provided in each of the general instructional areas (Solomon, 1981). We used regression techniques to relate the observational and log data, allowing a detailed examination of the error components involved in characterizing pupil pursuits from log data. While log

data provided reasonable estimates for the overall amount of time associated with the different subject matters averaged over students and over days, the error was more substantial at the individual student level. However, in this paper the focus is mostly on the former type of data. As a part of this study, reliability regarding the coding of the logs was estimated to be $r = .70$ to $.90$.

Teacher logs constituted the primary data source for two reasons. First, observation data are based only on 6 days worth of activity while log data are based on 49-60 days worth. Second, log data describe not only pupil pursuits but also the teachers instructional intent or goals for the lesson. While this could have been inferred from the observational data, an additional source of error would have been introduced.

Teachers' logs were used to make judgments about the major and minor content of each lesson. Thus if the objectives given by the teacher centered on one subject matter, then a single focus was coded for that segment. On the other hand, if the teachers' instructional objectives and content specifications indicated content ranging across different subject matters, the segment was coded as having instructional content in a major area as well as in one or more minor areas. We distinguished between major and minor foci after examining both the classroom schedule and teachers' comments on the logs.

A data file, compiled for each student in the study, contained the amount of time that the student spent in a given instructional segment, the type of teacher supervision, and the nature of the content covered. After collecting all observation and log data, we conducted follow-up interviews to prevent cuing the teachers toward integrating behaviors.[3]

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[3]One of the six teachers, Teacher 2, joined the research team as a teacher collaborator following the observational and log phase of the study and was therefore not included in the interview phase.

Interviews focused on teachers' conceptions and beliefs about curriculum integration. Three structured interview questions, including one simulation activity, addressed the issues explored in this paper:

1. When you teach a subject matter such as science, social studies, or language arts, do you use activities from other subject areas?

2. What do you think of this statement? Teaching depends on dividing the school day into chunks of time for each separate subject matter area.

3. Let's assume that you have decided to teach the following three topics in a self-contained classroom. Weather and climate for science: telling time, clock, and calender in math; and Canada and Mexico for social studies. You also have to teach reading, language arts, and art. What would you want to cover within these topics and when? (Teachers were asked to think aloud as they filled out a weekly plan sheet.)

Results

The data represented in Table 1 indicate, for each classroom, the total amount of instructional time spent in the three types of integrated activities projected over the school year (assuming a 180-day school year). Great variability existed among the six teachers in this study in the amount of time they spent in Type 3 activities (where two language arts skills are integrated). One teacher spent approximately 4.5 hours while another spent over 103 hours in Type 3 activities. This time represents only about 1% of the total time the first teacher spent in language arts instruction, compared to 31% for the second teacher.

Substantial variability occurred in Type 1 activities. Teacher 1 spent as little as 2 hours during the year with a major focus on language skills and a minor focus on some other content, while Teacher 6 spent some 67 hours in this type of activity. Data in Table 1 also indicate the amount of time teachers spent in Type 2 activities (non-language subject matter as the major focus, language skills as the minor focus). One of the teachers spent no time in Type 2 activities, while another teacher spent almost 50 hours.

Table 1

Hours Spent per Year in Types 1-3 Integrative Activities

Classroom Observation	Major: Language Skill Minor: Content Area With	 Without	Major: Other than Language Content Area Minor: Language Skill With	 Without	Major: Language Skill Minor: Language Skill With	 Without
	(Type 1)		(Type 2)		(Type 3)	
1	1.61	339.57	0	219.10	99.90	241.07
2	51.52	197.67	13.87	224.10	65.17	184.07
3	6.97	265.44	9.54	378.10	4.42	267.99
4	10.37	313.35	9.09	286.20	43.60	298.12
5	24.97	154.56	2.77	345.60	5.20	174.32
6	67.41	185.89	49.59	341.70	103.14	150.16

Adding the amount of time in Column 1 (Table 1) with that in Column 3 yields the total amount of integration of language skills with other subject matter content. Projected over the school year, Teacher 6 spent as much as 117 hours in such integrated instruction. This is more than twice as much as for the teacher who allocated the next largest amount of time, and more than 50 times the amount allocated by the teacher who integrated the least.

Curricular Consequences of Integration

To determine how differences in time allocated to integrative activities might affect the overall curriculum, we divided the sample into three groups based on the total amount of integration described in the preceding paragraph. The first group, Teachers 1 and 3, represented two classrooms with low levels of integration. The second group, Teachers 4 and 5, represented two classrooms with modest levels of integrative activity. The final group, Teachers 2 and 6, represented two classrooms where a substantial amount of time was spent integrating language instruction with other subject matter.

The amount of time teachers spent in separate language arts and reading activities decreased as the amount of integration increased. The two teachers who spent the least time in integrated activity allocated 340 hours over the school year for language and reading instruction. Those teachers who integrated the most allocated only 296 hours. The two moderate integrators spent around 323 hours.

Teachers who integrated the most spent 22 hours over the year in instruction related to literature: They spent three to five times more instructional hours on literature than those doing the least amount of integration. In the area of art, the teachers who integrated the most spent around 50 hours of instruction on art, whereas those who integrated the least spent only around 20 hours.

In music, teachers who integrated moderately spent more time in music than either of the other two groups. Teachers who integrated the least spent only 12 hours over the school year in music, whereas those in the middle spent 46 hours, and those who integrated the most spent 33 hours.

There was a striking lack of integration of mathematics and science with language skills. Differences in time allocated to mathematics and science in the six classrooms apparently reflects the priorities individual teachers placed on these subjects independent of their willingness to integrate language arts with other subjects. Thus, those teachers who integrated the most averaged 30.61 minutes of mathematics instruction per day, while those with the lowest levels of integrated activity averaged 35.26 minutes per day. There was a similar pattern in science.

All six teachers, however, integrated, to some extent, social studies instruction with language skills. It is particularly interesting to note that the pattern of time allocations in social studies relative to the groups of high, moderate, and low integrators reversed when integrated time was considered. The group of low integrators had the largest amount of time allocated to non-integrated social studies instruction, averaging 17.81 minutes per day. The high integrators averaged only 13.56 minutes per day, while the moderate integrators averaged 14.01 minutes per day. When integrated social studies activities were considered, the pattern reversed, with the high integrators averaging 27.38 minutes per day, and both the moderate and low integrators averaging 22.33 minutes per day of social studies instruction.

Type 1 Integration

Not surprisingly, teachers integrated almost all of the language skills with other content. The language arts skill areas most often integrated were reading and writing. Integration of writing mechanics was very small and

integration of oral expression skills varied considerably from teacher to teacher. Reading skills were integrated most frequently with literature. Writing skills were integrated with social studies a little less than half as much as with art.

Type 2 Integration

There were large variations in Type 2 integration (non-language arts skills as minor); the range was from no indication in Classroom 1 to instances of some integration in each language arts skill category in the content areas of literature and social studies and in several categories in science and art in Classroom 6. In all classrooms where integration of this type occurred, instances of integration clustered in the content areas of literature and social studies with some integration occurring in science. No single language arts skill area emerged as the most likely area to be integrated with subject matter content.

Type 3 Integration

Teachers vary in the amount and in the nature of Type 3 integration (language skills with language skills). Teacher 2, who did a great deal of integration of language skills with other content areas, also integrated a fair amount of instruction across the language areas. This teacher, for example, integrated reading, original writing, and writing mechanics. She also integrated writing instruction with library skills and as oral expression with original writing.

Contextual Variables

Pupil pursuits. Though the amount and type of integration varied among classrooms, a number of consistencies existed across classrooms relative to supervisory and grouping conditions. *Most of the integrated time was spent*

under direct teacher supervision, with the whole classroom as the target group. Essentially no integrated instruction occurred in small group settings. Only one class of pupils received substantial amounts of integrated instruction individually supervised by the teacher as an outgrowth of a preceding whole-class integrated lesson. In this classroom, the children spent time working individually on follow-up activities and took turns going up for 5- to 10-minute working sessions with the teacher.

Academic ability. Teachers were asked to rate the reading and general academic ability of each student in their classroom. Children were rated at, above, or below grade level with respect to reading achievement and general academic ability. Using these designations, an analysis (MANOVA) was performed that identified the extent to which children perceived to be of different abilities received differing amounts of integrated instruction. The results suggested that in each of the six classrooms teachers' perceptions of students' abilities did not affect the amount of integrated instruction they received. (Neither the interaction of classrooms and perceived ability ($p < .4$) nor the main effect for perceived ability ($p < .6$) were significant.)

Time frames for planning. The data were examined to determine the extent to which integrated instruction was provided on a consistent basis over an extended period of time. Where the major focus was language arts skills and the minor focus was another subject matter, Teacher 4, who integrated a moderate amount, seems to have provided a single unit in which she did a fair amount of integrated instruction. On the other hand, Teacher 5 provided a large amount of integrated instruction on several days fairly well spaced throughout the three-month period. The patterns of Teachers 2 and 6, who provided the largest amount of integrated instruction, differed markedly from

those of the other teachers. Within a 6- to 8-day period, Teacher 2 conducted a large amount of integrated activity, then basically no integrated instruction occurred for another 8- to 10-day period. Then another concentrated amount of integrated instruction followed. Teacher 6 had a similar pattern.

A similar pattern of concentrated integration during instruction occurred when a non-language subject matter was the major focus of the lesson and the language skills a secondary focus. Teacher 6, who provided the largest amount of this type of integration, also appeared to integrate subjects based on some type of unit planning. A fair amount of this type of integrated instruction occurred over a 5-day period followed by a 7-day period in which she used this type of integration on all but 4 of the 7 days.

Teachers' Conceptions of Integration

In the follow-up interview, all five teachers reported that they favored subject-matter integration. However, the documented number and nature of integrative activities varied considerably. Teacher 1 provided no concrete examples, while Teacher 6 gave specific examples of using reading, language arts, literature, and science content in art instruction. Teacher 5 gave examples of using content from language arts and social studies in reading instruction; Teacher 3 reported examples of using content from science, social studies, and art in reading and language arts instruction; and Teacher 4 cited examples of how science and social studies content could be used in language arts instruction. Teacher 1 was the only teacher who agreed with the statement that teaching depends on dividing the school day into chunks of time for each separate subject area. He stated that he believes that students generally need organization and that clear-cut divisions between subject-matter instruction help focus students' attention. All other teachers interviewed

cited efficient use of time as the major reason for rejecting highly compartmentalized instruction.

An assessment of each teacher's strength of conviction concerning integration was made based on whether the teacher gave detailed examples of integration and whether or not the teacher had a definite rationale for integration. Teachers 3, 5, and 6 were rated as strong in their conviction to integrate. Teacher 1 was rated as strong in his conviction not to integrate, and, although minimally supporting integration, Teacher 4 was rated weak in her conviction to integrate.

What varied considerably among teachers was the extent to which they planned subject-integrated activities in the simulation and their reported strategies for implementing those plans. We analyzed teachers' responses to assess their perceptions of subject-matter permeability and their degree of willingess to shorten or extend time boundaries. Their perceptions of subject-matter permeability do appear to affect how much they integrated subject-matter. Most notably, Teachers 1, 4, and 5 scheduled reading instruction at the same time across the week, placing it in the schedule first, thus establishing reading instruction as a constant that was never changed as the rest of the lessons were planned. These same teachers stated that they would teach math separately as well, although the time frame was not as rigid.

Teacher 1 consistently maintained definite time slots for each subject. These were generally short periods (about 40-minutes). On one occasion he mentioned relaxing the time boundaries, stating that he would use a longer time slot at the end of the week to "tie things together."

Teacher 4 also used small time slots for each subject. She was very strict about touching on every subject every day. She scheduled 20 minutes for social studies and 20 minutes for science each day, never relaxing the time boundaries to combine content from the two subject matters.

In contrast, Teachers 3 and 6 both talked of using long time units and planned accordingly. Teacher 3 planned with flexible boundaries throughout the morning, combining several subjects during that time. Teacher 6 replaced her traditional basal reading time on one day with a longer time slot to include reading, language arts, and art as an introduction to a unit on Alaska and Hawaii.

Relationship Between Beliefs and Actions

The relationship between the teachers' stated beliefs about subject-matter integration and their actual use of it in language arts instruction are summarized in Table 2. Observation and log data indicate that Teacher 1 spent only two hours during the year in integrated language arts instruction. This finding is consistent with the beliefs he stated during the follow-up interview. Teacher 6, the highest integrator of language arts content (117 hours during the year), was one of the strongest proponents of subject-matter integration as indicated by the interview analysis. Teacher 4 was a moderate integrator of language arts (35.9 hours per year). In the interview she stated a belief that subjects generally should be integrated, but she was rated weak on her commitment to integration. In the simulated planning activity, she maintained separate subject matter boundaries except in science and social studies.

Teacher 5, a moderate integrator, also stated a belief in the concept of integration--in fact she was quite adamant about it. In the planning activity, however, she maintained separate subject matter boundaries, integrating only to a limited extent. Teacher 3 demonstrated the only glaring inconsistency between beliefs and action. Although he was a low integrator in practice, he stated in the interview that he strongly favored subject-matter integration, particularly in language arts. In the weekly planning activity,

he readily relaxed boundaries and was the only teacher who stated he would integrate all subjects.

Table 2

Teachers' Subject-Integrated Instruction with Language Arts as the Major or Minor Focus and a Profile of Their Beliefs About It

Teacher	Hours per Year	Belief Profile
1	1.6	Keeps subjects segregated. Does not relax subject boundaries or time boundaries in planning. Does not integrate language arts with other subjects.
3	16.5	Likes to combine subjects. Relaxes boundaries of time and subjects. Integrated reading and language arts with science and social studies.
4	19.5	Agrees with combining subjects. Relaxed content boundaries but not time boundaries. Did not relax reading and language arts boundaries in planning. Talked of integrating language arts (particularly writing) with other subjects.
5	27.7	Agrees with combining subjects. Relaxed content boundaries in language arts and social studies in cursory way--not in reading, science, math. Did not relax time boundaries.
6	117.0	Talked of integrating writing with social studies. Likes to combine subjects. Relaxed boundaries of subject matter and time. Talked of integrating language arts with science, social studies, art, reading.

Conclusions

Despite indications from the interview data that teachers generally favor an integrated approach to language arts instruction, only minimal levels of integration were actually observed. Based on an average of 1200 hours of school per year, integrated language arts activities accounted for less than 10% of the available instructional time in all classrooms studied.

Interview data indicated that these five teachers believed subject-matter integration was a means to increase efficiency of instruction, and it was substantiated by the observation and log data. A difference of almost 50 hours in non-integrated language arts instruction was obtained between those teachers who integrated most and those who integrated least; this indicates that if teachers believe they are adequately covering language instruction by integrating it with other subject matters, they feel less compelled to spend more time on designated language arts instruction, thus gaining more time in the curriculum. This difference appears to have startling effects when one considers the time allocated to literature and art. The amount of time spent in art and literature in high integrators' classrooms was *more than double* the amount of time spent in these areas in low integrators' classrooms.

A comparison of the two data sources suggests that teachers' perceptions of the permeability of subject matter and time boundaries and their level of use of unit planning are related to the amount of integrated instruction that actually occurs in their classrooms. Log data revealed that teachers who integrated subject matter most often did it in a fairly concentrated way. The intense periods of integration were generally followed by lengthy periods in which no integrated instruction occurred. This suggests that integration is planned during unit planning.

With the exception of Teacher 3, those teachers who approached the planning simulation by starting with rigid subject-matter or time boundaries were much less likely to integrate instruction in their classrooms. In the simulated planning activity, reading and mathematics were treated as impermeable subject-matter areas by four teachers and were assigned rigid time slots in the schedule. These teacher-planning behaviors were consistent with observation and log data indicating the absence, in all six classrooms, of any integration of reading skills with subject matter in small-group contexts.

Future research in this area should focus on gaining a better understanding of why such low levels of integration actually occur in classrooms despite teachers' stated beliefs that integration is desirable. In the classrooms studied, integration generally occurred only in whole-class settings.

One can speculate that, through their teaching experiences, these teachers have become overly sensitive to what psychologists call interference effects; this results in an unspoken belief that direct teacher supervision is necessary to help students focus on multiple content goals. At the same time, the stress on basics has resulted in a teaching technology that promotes individual seatwork or small-group activities. Time allocation studies indicate that most language arts instruction occurs in individual or small-group settings (Roehler, Schmidt, & Buchmann, 1981). The constraints imposed by skill-focused instructional strategies appear to operate independently of teacher beliefs about integration, resulting in minimal levels of integration instruction in elementary classrooms.

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